DELIVERING PELVIC FLOOR REPAIR IMPLANTS

CROSS-REFERENCE TO RELATED APPLICATIONS

This application is a Continuation of, and claims priority to, U.S. patent application Ser. No. 13/083,076, filed on Apr. 8, 2011, entitled "DELIVERING PELVIC FLOOR REPAIR IMPLANTS", which, in turn, claims priority to U.S. patent application Ser. No. 61/330,227, filed on Apr. 30, 2010, entitled "DELIVERING PELVIC FLOOR REPAIR IMPLANTS", the disclosures of which are incorporated by reference herein in their entirety.

TECHNICAL FIELD

The invention relates to devices and methods for delivering pelvic floor repair and/or other implants, and more particularly, to minimally invasive devices and methods for delivering implants or sutures to a pelvic region of a body of a patient.

BACKGROUND

The delivery of a pelvic floor repair (PFR) implant is typically an invasive surgical procedure. For this surgical procedure, a large dissection can be required within the pelvic region of the human body to deliver a PFR implant.

Some commercially available medical devices are limited by the manner in which they access the pelvic region of the human body. For example, such devices typically cannot be easily manipulated to access difficult areas within the pelvic region. In addition, these devices are generally cumbersome and rigid, and therefore they do not provide the maneuverability necessary to perform a PFR implant surgical procedure in a less invasive manner.

SUMMARY OF THE INVENTION

The invention relates to improvements in medical devices, including suturing devices and devices for use in the delivery of PFR and/or other implants. A medical device according to the invention is less invasive and more manipulatable relative to existing devices in the placement of PFR and/or other implants within a pelvic region of a human body. This is accomplished, for example, by devices according to the invention having reduced profile components compared to existing devices. A medical device according to the invention allows an operator to make a minimum dissection profile within a pelvic region such that the medical device may be inserted into the pelvic region to deliver a PFR and/or other implant in a less invasive manner while providing the patient with an expedited healing process. In contrast to existing commercial devices which require large dissection profiles of a pelvic region to deliver PFR implants, the dissection profile required by devices according to the invention are significantly smaller, such as equal or about equal to the diameter of an operator's finger, the profile of the medical device, or the profile of the PFR implant. A device according to the invention also can be used to deliver one or more sutures.

In one aspect, the invention relates to a medical device for use in a transvaginal implant procedure. The medical device includes a handle, an elongated shaft member, and a head. The handle has a proximal end and a distal end. The handle also includes an actuator that is configured to be manipulated by an operator of the medical device. The elongated shaft member of the medical device defines a lumen that extends from the distal end of the handle. The elongated shaft member has a diameter that is minimally greater than a diameter of a wire form that extends longitudinally within the elongated shaft member. The elongated shaft member extends along a longitudinal axis when the elongated shaft member is disposed in a straight or a substantially straight configuration. The head of the medical device extends over a distal end of the elongated shaft member. The head has a length that is measured along the longitudinal axis of the elongated shaft member. The head also has a maximum width that is measured in a first direction that is transverse to the longitudinal axis of the elongated shaft member. In addition, the head has a thickness that measured in a second direction that is perpendicular to the first direction. The length of the head is greater than the maximum width of the head. Further, the maximum width of the head is greater than the thickness of the head. The thickness of the head is also greater than the diameter of the elongated shaft member. The head also includes a needle carrier. The needle carrier is configured to receive a needle that can be coupled to a suture or to a portion of a pelvic floor repair implant. The head further includes a needle catch and a needle exit port. At least a portion of the needle carrier exits the needle exit port when the operator manipulates the actuator. The needle catch is configured to receive and retain the needle carried by the needle carrier.

In one embodiment according to this aspect of the invention, the handle of the medical device has a length that extends off at an angle from the length of the handle, such as a 90° angle. The handle can also include a spring that is disposed between the proximal end and the distal end of the handle. The actuator can be configured to cause compression of the spring when the operator of the medical device manipulates the actuator.

The elongated shaft member can be deflectable off the longitudinal axis by manipulation by the operator. The elongated shaft member can have an outer surface that is exposed such that the operator can touch the outer surface while manipulating the actuator during the transvaginal implant procedure.

The wire form of the medical device can move longitudinally within the elongated shaft member to cause the needle carrier to exit the needle exit port when the operator depresses the actuator. The proximal end of the wire form can be coupled to the actuator. The actuator could include a plunger or a trigger. The elongated shaft member can be deflectable into a shape that is retained during use of the medical device. The head of the medical device can be rotatable relative to the longitudinal axis of the elongated shaft member. The head of the medical device can include an opening for receiving tissue of a patient's body, and that opening can include a substantially C-shaped configuration. The head can also include a channel in which a needle carrier is disposed. The needle carrier can be movable within the channel when the operator manipulates the actuator of the medical device. The elongated shaft member of the medical device can be made of one or more shape memory materials.

In a second aspect, the invention relates to a medical device for use in a transvaginal implant procedure. The medical device according to the second aspect of the invention also includes a handle, an elongated shaft member, and a head. The handle includes a spool member and a ring member. The spool member is configured for receiving at least two fingers of an operator of the medical device and the ring member is configured for receiving a thumb of the operator. The elongated shaft member of the medical device defines a lumen that extends from the distal end of the handle. The elongated shaft